

PATENT APPLICATION

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of

Docket No: Q80886

Kenichi KATSUMATA, et al.

Appln. No.: 10/816,890

Group Art Unit: 2837

Confirmation No.: 4026

Examiner: Patrick L. Miller

Filed: April 5, 2004

For: **MOTOR DRIVE APPARATUS AND METHOD OF CONTROLLING AN OPERATION
ON THE SAME**

SUBMISSION OF APPEAL BRIEF

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents

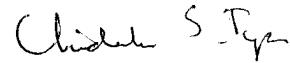
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Sir:

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Respectfully submitted,



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WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: May 22, 2007

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APPEAL BRIEF UNDER 37 C.F.R. § 41.37

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Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

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I. REAL PARTY IN INTEREST

The real party in interest is YAZAKI CORPORATION (Assignee) by virtue of an assignment executed by the inventors Kenichi KATSUMATA, Yasuyuki MOCHIZUKI, Yuichi NAKAZAWA and Susumu YAMAMOTO on March 29, 2004 and filed on April 5, 2004 along with form PTO-1595.

II. RELATED APPEALS AND INTERFERENCES

Upon information and belief, there are no other prior or pending appeals, interferences, or judicial proceedings known to Appellants, Appellants' representatives or the Assignee that may be related to, be directly affected by, or have a bearing on the Board's decision in this appeal.

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III. STATUS OF CLAIMS

Each of the pending claims 1-4 are rejected (see Final Office Action dated August 22, 2006).

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IV. STATUS OF AMENDMENTS

There are no pending unentered amendments.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The Appellants invention relates to a motor drive apparatus, an example of which is a power window. A power window apparatus opens and closes the window glass using an electric motor. Such power window apparatus is often provided with a jamming prevention mechanism. When such power windows are jammed by a foreign object, the current through the apparatus increases tremendously.

The Specification describes a conventional power window apparatus where a current flowing to a power window motor is detected through a shunt resistor connected in series to the power window motor. The level of the detected current is compared with a predetermined reference value, and, if the current level exceeds the reference value for a predetermined period, the power is stopped. When a lock current flows during a process of raising the window glass and it is judged that a foreign object is caught the direction of rotation of the motor is reversed.

However, in a conventional power window apparatus, when a foreign object is caught during a process of raising window glass where window glass is fully opened, a large current or a lock current flows to a semiconductor device which drives a window motor, and the semiconductor device generates heat. The same problem arises when the window glass is fully closed.

To overcome this problem, the present invention (as recited in claim 1) provides a motor drive apparatus comprising a motor current detecting section operable to detect a motor current when a movable member driven by a motor is moved in a first direction (Specification [0051] and [0052]). A lock current judging section monitors the motor current detected by the motor current detecting section (Specification [0051]). The lock current judgment sections makes a

judgment on a lock current that flows when motion of the movable member is set to a locked state (Specification [0051]). A switch operation invalidation setting section invalidates a switch operation when the motor current is the lock current (Specification [0052]). The switch operation corresponds to moving the movable member in the first direction. A switch operation invalidation setting canceling section cancels the invalidation by the switch operation invalidation setting section (Specification [0052] ll. 10-14). The canceling is done when a second switch operation of moving the movable member in a second direction is conducted under a state where the invalidation is done (Specification [0052] ll. 10-14).

The present invention as recited in claim 2 is analogous to claim 1 except in the sense that the switch operation invalidation setting section invalidates a switch operation for a predetermined period when the motor current is in the lock current (Specification [0021])

The present invention as recited in claim 3 is a method of controlling an operation on a movable member driven by a motor. The method comprised invalidating a switch operation of moving the movable member in a first direction (Specification [0068]). The invalidation is done when a motor current reaches a lock current corresponding a locked state (Specification [0068]). The switch operation invalidation setting state is canceled conducting a second switch operation of moving the movable member in a second direction during said invalidation (Specification [0069]).

The present invention as recited in claim 4 is a method of controlling an operation on a movable member driven by a motor. A switch operation in a first direction of moving the movable member is invalidated for a predetermined period (Specification [0030]). The switch operation invalidation setting state is cancelled by conducting a second switch operation of

moving the movable member in a second direction during the predetermined period (Specification [0031]). When the motor current corresponds to the lock current even at a timing when the predetermined period elapses, a second switch operation in the second direction is invalidated again only for the predetermined period (Specification [0032]).

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VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Hammer (U.S. Patent No. 3,581,174) and are presently under appeal.

VII. ARGUMENT

1. Technology disclosed by Hammer

Hammer discloses a remotely controlled window that can be automatically retracted in response to an obstruction impeding closure of the window. Referring to FIG. 1 of Hammer, an automotive vehicle body 8 is provided with movable window 12 which is retractable into a hollow body section 14. A window regulator 16 moves the window 12 between the closed and open positions. An electric drive motor 18 powers the window regulator 16 based on motor control system 20. The window is remotely controlled by a switch 22. The motor control system 20 includes a motor power circuit 50 and an automatic reversing circuit 52. The manually operated switch 22 applies battery voltage across the field windings 40 or 42 and the armature 54 when the switch lever 82 is placed in the "Close" or "Open" positions, respectively.

During normal operation of the window actuator 16, the switch lever 82 is moved to the "Close" position to energize the field winding 40 from the series circuit including the battery 54, the ignition switch 66, the normally closed contact 74, the contact 84 and the relay winding 62. The motor shaft 46 is rotated clockwise to drive the window regulator 16 to a window raised or closed position. To lower the window 12, the switch lever 82 is placed in the "Open" position to engage the contact 86 and energize the field winding 42 as described for the field winding 40.

During the window raising mode of operation if an object in the window opening 10 blocks further closing of the window 12, the current supplied to the field winding 40 increases and possibly reaches the overload or stalled condition causing a magnetic field that is sufficient to close the contacts 90 and 92. This leads to the reversing relay winding 78 to be connected across the battery 54 eventually causing the overload current condition in the motor 18 is

removed. Regardless of the position of the switch lever 82, the field winding 42 continues to be energized causing the armature 44 to be rotated counterclockwise driving the window regulator 16 to lower the window 12 toward its opened position. The automatic reversing circuit 52 is disconnected and inoperative when the window 12 is in either the opened or closed position. The automatic reversal of the motor 18 prevents motor current from reaching an overload level for an extended time after the motor is stopped by an obstruction.

2. The present invention is not anticipated by Hammer

As described above, Hammer merely discloses a relay circuit that reverses the direction of the motor when the motor is in an overload condition. The Appellants respectfully submit that Hammer discloses nothing more than the technology described in the Background section of the present Specification relating to conventional technology. In fact, the problems identified in the present Application is neither identified nor solved in Hammer.

Importantly, Hammer does not disclose (or suggest) the canceling of the invalidation as in the present invention. The present invention requires a motor current detecting section, a lock current judging section, a switch operation invalidating setting section and a switch operation invalidation setting canceling section. The switch operation invalidation setting canceling section is required to cancel the invalidation by the switch operation invalidation setting section when a switch operation of moving the movable member in a second direction is conducted after the invalidation. In other words, when the window is reversed, the invalidation is required to be canceled. This prevents the problems that are identified in the present Specification.

The Examiner refers to 5:1-29 of Hammer in alleged support for this teaching. However, in this section Hammer merely discloses that the automatic reversing circuit 52 is disconnected and inoperative **when the window is either in the open or closed position**. In other words, this section referred to by the Examiner merely discloses that when the window is completely closed or open, the reversing section is inoperable. This is not believed to be equivalent to the operation of the invalidation canceling section as in the present invention. The invalidation canceling section cancels the invalidation when the window moves in the opposite direction, thereby preventing the problems that are mentioned in the present Specification. In fact, Hammer merely teaches reversing the direction of motion and not the subsequent cancellation of the reversing, as in the present invention.

In the final Office Action dated August 23, 2006, the Examiner contends that the limit switch of Hammer “reactivates” the manual switch referring to the same section and considers this to be equivalent to canceling of invalidation. However, the Examiner appears to be reading the teaching of Hammer over broad. There is no disclosure or suggestion in Hammer relating to such a reactivation. As noted above, Hammer merely discloses that the automatic reversing circuit 52 is disconnected and inoperative when the window is either in the open or closed position. There is no reactivation as construed by the Examiner.

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” MPEP 2131 *citing Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The Examiner has not established anticipation of the present invention by Hammer at least because of the above noted differences.

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Therefore, the rejection of claim 1 based on Hammer must be reversed.

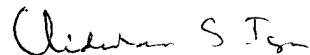
Claims 2-4 include limitations analogous to the ones described above in relation to claim

1. Therefore, the finding of anticipation of these claims must also be reversed.

Unless a check is submitted herewith for the fee required under 37 C.F.R. §41.37(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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CLAIMS APPENDIX

CLAIMS 1-4 ON APPEAL:

1. (previously presented): A motor drive apparatus comprising:
 - a motor current detecting section operable to detect a motor current when a movable member driven by a motor is moved in a first direction;
 - a lock current judging section operable to monitor the motor current detected by the motor current detecting section to make a judgment on a lock current that flows when motion of the movable member is set to a locked state;
 - a switch operation invalidation setting section operable to invalidate a switch operation when the motor current is the lock current, the switch operation corresponding to moving the movable member in the first direction; and
 - a switch operation invalidation setting canceling section operable to cancel the invalidation by the switch operation invalidation setting section, said canceling being done when a second switch operation of moving the movable member in a second direction is conducted under a state where said invalidation is done.

2. (previously presented): A motor drive apparatus comprising:
 - a motor current detecting section operable to detect a motor current when a movable member driven by a motor is moved in a first direction;
 - a lock current judging section operable to monitor the motor current detected by the motor current detecting section to make a judgment on a lock current that flows when motion of the movable member is set to a locked state;

a switch operation invalidation setting section operable to invalidate a switch operation for a predetermined period when the motor current is the lock current, the switch operation corresponding to moving the movable member in the first direction; and

a switch operation invalidation setting canceling section operable to cancel the invalidation by the switch operation invalidation setting section, said canceling being done when a switch operation of moving the movable member in a second direction is conducted under a state where said invalidation is done .

3. (previously presented): A method of controlling an operation on a movable member driven by a motor, the method comprising :

invalidating a switch operation of moving the movable member in a first direction , said invalidation being done when a motor current reaches a lock current corresponding a locked state; and

canceling the switch operation invalidation setting state by conducting a second switch operation of moving the movable member in a second direction during said invalidation.

4. (previously presented): A method of controlling an operation on a movable member driven by a motor, the method :

invalidating a switch operation in a first direction of moving the movable member for a predetermined period;

canceling the switch operation invalidation setting state by conducting a second switch operation of moving the movable member in a second direction during the predetermined period; and

invalidating again, when the motor current corresponds to the lock current even at a timing when the predetermined period elapses, a second switch operation in the second direction only for the predetermined period.

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EVIDENCE APPENDIX

None.

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RELATED PROCEEDINGS APPENDIX

None.